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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,868	08/04/2000	Lawrence W. Yonge III	04838-063001	2454

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EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/632,868	YONGE, LAWRENCE W.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 26-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12,27-31 and 33-35* is/are rejected.

7)☒ Claim(s) *11,13-24,26 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-24 and 26-35 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

2. The information disclosure statement filed 11/2/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Creedon et al. (USPN 6,430,192) in view of Ulug (USPN 4,682,324).

5. Regarding claims 1 and 35, Creedon discloses a method of frame forwarding for use in a CSMA network of stations connected to a shared medium, in which stations contend for access to a network by sensing whether other stations are transmitting on the shared medium (col. 1, lines 6-27), comprising: preparing by a first station as a first frame a frame intended for a second station to be sent to an intermediate station (repeater) for forwarding to the second station as a

second frame, the frame including a delimiter (col. 1, line 25 and col. 1, line 66-col. 2, line 20); and causing the frame to be transmitted as the first frame to the intermediate station (col. 1, line 25 and col. 1, line 66-col. 2, line 20).

Creedon does not expressly disclose that the second frame is either transmitted immediately or discarded. However, Creedon does disclose that the frame is discarded after a number of unsuccessful attempts (col. 3, lines 21-23). Creedon also discloses that the packets are subject to latency constraints (col. 1, lines 54-59). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Creedon discloses dropping a packet after a certain amount of time, it would have been obvious to one of ordinary skill in the art to drop the packet after any amount of time, including if the packet was not transmitted immediately, absent a showing of criticality by Applicant. In addition, Creedon suggests that a packet would be dropped if not transmitted immediately if the packet were subject to very tight latency constraints.

Creedon does not expressly disclose that the delimiter includes control information to be heard by other stations in the network for controlling the timing of the frame forwarding or that the intermediate station modifies the frame by changing the control information prior to

transmitting the modified frame as the second frame to the second station, wherein the delimiter includes one or more contention-control fields giving the intermediate station the ability under some circumstances to transmit the second frame immediately without contending for access to the network. However, Creedon does disclose a method for ensuring that a packet subject to latency constraints is transmitted within a substantially consistent latency (col. 1, line 54-col. 2, line 20). Ulug teaches, in a contention communication system, having control information that is heard by other stations in the network for controlling the timing of the frame forwarding wherein the control information includes one or more contention-control fields giving a station the ability under some circumstances to transmit a frame immediately without contending for access to the network (col. 6, lines 35-47 and col. 9, lines 26-43) in order to ensure that the packets are not subject to unacceptable delays (col. 1, lines 40-51 and col. 2, lines 3-9). Ulug also discloses that intermediate stations can modify a packet (change the control bit) (col. 6, lines 35-47 and col. 9, lines 26-43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the delimiter include control information (contention bit) to be heard by other stations in the network for controlling the timing of the frame forwarding wherein the delimiter includes one or more contention-control fields giving the intermediate station the ability under some circumstances to transmit the second frame immediately without contending for access to the network in order to ensure that the packet is sent without unnecessary delay. It also would have been obvious to one of ordinary skill in the art at the time of the invention to have the intermediate station modify the frame by changing the control information prior to transmitting the modified frame as the second frame to the second station in order to release the channel for transmission by other stations.

6. Regarding claim 33, referring to claim 1, Creedon in view of Ulug implicitly discloses determining that data throughput over the shared medium can be increased by having the frame forwarded to the second station by the intermediate station instead of being transmitted to the second station by the first station directly (Creedon: col. 1, line 25 and col. 1, line 66-col. 2, line 20) where it is implicit from the use of a repeater that the first and second station are unable to communicate with each other (zero throughput) such that the use of a repeater increases the throughput of the shared medium and where the claim does not specify what mechanism is used for the determination such that any determination will read on the claim.

7. Regarding claim 34, referring to claim 1, Creedon in view of Ulug implicitly discloses determining that the first station is unable to communicate with the second station (Creedon: col. 1, line 25 and col. 1, line 66-col. 2, line 20) where it is implicit from the use of a repeater that the first and second station are unable to communicate with each other and where the claim does not specify what mechanism is used for the determination such that any determination will read on the claim.

8. Claims 2-10, 12, and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Creedon et al. (USPN 6,430,192) in view of Ulug (USPN 4,682,324) as applied to claim 1 above, and further in view of Larsen et al. (USPN 6,097,703).

9. Regarding claim 2, referring to claim 1, Creedon in view of Ulug does not expressly disclose that the first frame includes as a destination address an address of the second station and an intermediate address field specifying an address for the intermediate station. However, Creedon in view of Ulug does disclose that the frames include addresses (Creedon: col. 2, lines 63-65 and Ulug: col. 4, lines 55-60). Larsen teaches, in a carrier sense communication system,

that the first frame includes as a destination address an address of the second station and an intermediate address field specifying an address for the intermediate station (col. 6, line 62-col. 7, line 11) in order to improve throughput in a noisy environment by relaying messages between destination and source stations (col. 1, lines 26-32). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the first frame include as a destination address an address of the second station and an intermediate address field specifying an address for the intermediate station in order to improve throughput in a noisy environment by relaying messages between destination and source stations.

10. Regarding claim 3, referring to claim 2, Creedon in view of Ulug in further view of Larsen discloses that the first frame further includes a forwarding indication that the frame is to be forwarded to the destination address by the intermediate address (Larsen: col. 6, line 62-col. 7, line 11) where a destination address different than an intermediate address indicates that the frame is to be forwarded.

11. Regarding claim 4, referring to claim 3, Creedon in view of Ulug in further view of Larsen discloses that the first frame further includes an indication that a response is expected from the intermediate station (Larsen: col. 8, lines 24-35) where the presence of a frame indicates that a response is expected.

12. Regarding claim 5, referring to claim 4, Creedon in view of Ulug in further view of Larsen discloses receiving the expected response from the intermediate station (Larsen: col. 8, lines 24-35).

13. Regarding claim 6, referring to claim 4, Creedon in view of Ulug in further view of Larsen discloses that the second frame includes an indication that a response is expected from

the second station (Larsen: col. 8, lines 24-35) where the presence of a frame indicates that a response is expected.

14. Regarding claim 7, referring to claim 6, Creedon in view of Ulug in further view of Larsen suggests that the second frame includes an indication that two responses are to follow the second frame, a first one of the two responses to be sent by the second station in response to the second frame and a second one of the two responses to be sent by the intermediate station in response to the first one of the responses (Larsen: col. 8, lines 24-35) where the end-to-end response will be relayed by the intermediate station in an environment in which the positions of the stations is static.

15. Regarding claim 8, referring to claim 2, Creedon in view of Ulug in further view of Larsen suggests that the contention-control fields comprise a priority indication and a contention-control indicator for indicating to the intermediate station that the second frame can occur in a next contention period unless any other frames having priorities higher than the priority may be awaiting transmission, in which instance the second frame is to be discarded (Creedon: col. 2, lines 10-20; Ulug: col. 6, lines 35-47 and col. 9, lines 26-43; and Larsen: col. 2, lines 12-15).

16. Regarding claim 9, referring to claim 2, Creedon in view of Ulug in further view of Larsen suggests that the contention-control fields comprise a highest priority indication and a contention-control indicator for indicating contention-free access so that no other stations can interrupt the frame forwarding prior to the transmission of the second frame by the intermediate station (Creedon: col. 2, lines 10-20; Ulug: col. 6, lines 35-47 and col. 9, lines 26-43; and Larsen: col. 2, lines 12-15).

17. Regarding claim 10, referring to claim 9, Creedon in view of Ulug in further view of Larsen discloses that an actual priority of the frame being forwarded is included in a segment control field in the payload of the first frame (Creedon: col. 2, line 65-col. 3, line 1).

18. Regarding claim 12, referring to claim 2, Creedon in view of Ulug in further view of Larsen discloses that the first and second frames have the same fields, and wherein the second frame is a modified version of first frame (Ulug: col. 6, lines 35-47 and col. 9, lines 26-43 and Larsen: Figs. 5 and 6 and col. 6, line 62-col. 7, line 11).

19. Regarding claim 27, referring to claim 1, Creedon in view of Ulug in further view of Larsen discloses selecting the intermediate station for frame forwarding from among the stations that can communicate with the second station using connection information based on characteristics of a respective first channel connection between each station and the second station and a second channel connection between each station and the first station (Larsen: col. 6, line 62-col. 7, line 26).

20. Regarding claim 28, referring to claim 27, Creedon in view of Ulug in further view of Larsen discloses that selecting further comprises: requesting the connection information for the first channel connection from the stations (Larsen: col. 6, lines 15-31 and col. 6, line 62-col. 7, line 26).

21. Regarding claim 29, referring to claim 27, Creedon in view of Ulug in further view of Larsen discloses that selecting comprises: selecting a station as the intermediate station based on combined characteristics of the first and second connections for a station as the intermediate station that give a highest data rate (Larsen: col. 6, lines 15-31 and col. 6, line 62-col. 7, line 26).

22. Regarding claim 30, referring to claim 27, Creedon in view of Ulug in further view of Larsen suggests that selecting comprises: selecting a station as the intermediate station based on combined characteristics of the first and second connections for a station as the intermediate station that give a most reliable transmission (Larsen: col. 6, lines 15-31 and col. 6, line 62-col. 7, line 26).

23. Regarding claim 31, referring to claim 27, Creedon in view of Ulug in further view of Larsen suggests that selecting comprises: receiving from the intermediate station for the first channel connection between the second station and the intermediate station a channel map specifying a maximum frame capacity (Larsen: col. 6, lines 15-31 and col. 6, line 62-col. 7, line 26).

Allowable Subject Matter

24. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest limiting the length of the frames to reduce latency when the priority of the delimiter is the highest and the actual priority is not the highest.

25. Claims 13, 14, 16, 22-24, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest having the forwarding indication set as a two-bit value, the two-bit value in the first frame having a first bit set to indicate that frame forwarding is to occur and a second bit corresponding to a contention control value of the frame to be forwarded when the first bit is set.

26. Claims 15 and 17-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest having the forwarding indication in the second frame include a cleared first bit and a set second bit to indicate that a frame is being forwarded to a final destination.

27. Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest selecting a maximum frame size based on the smaller of the maximum frame capacity for the second channel connection to the intermediate station and the maximum frame capacity specified by a channel map for the first channel connection between the second station and the intermediate station.

Conclusion

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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